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## Specialty Soybean Test - South

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# Specialty Soybean Test - South

## **Abstract**

The purpose of this test is to evaluate the experimental food-type soybean lines adapted to southern Iowa. The 2000 Specialty Test included commodity yellow hilum, large-seeded high protein, small-seeded, and lipoxygenase free experimental lines, and for comparison of agronomic traits, commercially grown varieties released by Iowa State University. Large-seeded, large-seeded high protein, small-seeded, and lipoxygenase free soybean varieties grown in Iowa are used to fill a niche in the food-bean market. These soybeans are mainly exported to Japan. Large-seeded soybeans are used in the production of miso and are consumed as a vegetable. Large-seeded high protein soybeans are used for tofu production. Small-seeded soybeans are used to create natto. Lipoxygenase free soybeans have less of the “beany” flavor associated with conventional varieties. This flavor trait is desirable in producing soy-based foods like soy milk.

## **Keywords**

Agronomy

## **Disciplines**

Agricultural Science | Agriculture | Agronomy and Crop Sciences

## Specialty Soybean Test - South

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### Introduction

The purpose of this test is to evaluate the experimental food-type soybean lines adapted to southern Iowa. The 2000 Specialty Test included commodity yellow hilum, large-seeded high protein, small-seeded, and lipoxigenase free experimental lines, and for comparison of agronomic traits, commercially grown varieties released by Iowa State University. Large-seeded, large-seeded high protein, small-seeded, and lipoxigenase free soybean varieties grown in Iowa are used to fill a niche in the food-bean market. These soybeans are mainly exported to Japan. Large-seeded soybeans are used in the production of miso and are consumed as a vegetable. Large-seeded high protein soybeans are used for tofu production. Small-seeded soybeans are used to create natto. Lipoxigenase free soybeans have less of the “beany” flavor associated with conventional varieties. This flavor trait is desirable in producing soy-based foods like soy milk.

### Methods

The specialty soybean test for the southern district was planted at four Iowa locations including Ames, Atlantic, Crawfordsville, and Winterset. At each location, three replications of four-row plots were planted. The plots were 12

feet long with a row spacing of 27 inches. The seeding rate was nine seeds per foot. Agronomic characteristics evaluated at Atlantic included plant height and lodging susceptibility. The center two rows were harvested using a self-propelled research plot combine. The moisture and weight of each plot were measured on the combine during harvest. The harvested seed was brought to Ames for seed weight calculation and oil and protein analysis.

### Results

The test results of the lipoxigenase free varieties IA2036LF and IA3012LF, the large-seeded high protein varieties IA2053 and IA2054, the small-seeded varieties IA2055, IA2056, IA2057, IA2058, IA2059, IA2060, IA3013 and IA4002, the commodity yellow hilum variety IA2061, and the commodity varieties IA2021 and Macon are summarized in Table 1. Unfortunately, near the end of July hail damaged the Atlantic plots. Therefore, data from those plots were not included in the 2000 Specialty Soybean Test South.

### Acknowledgments

Thank you Bernard Havlovic, Armstrong Research Farm Superintendent, for helping select the plot site, for applying the pre-plant herbicide, for preparing the seed bed, and for harvesting the border rows.

**Table 1: 2000 Specialty Soybean Test South, Iowa State University.**

Ames, Crawfordsville, and Winterset, Iowa

| Entry     | Yield | Mat. | Lodg. | Height | Seed weight |        | Protein | Oil  | Emergence | Chlorosis | Character              |
|-----------|-------|------|-------|--------|-------------|--------|---------|------|-----------|-----------|------------------------|
|           | bu/a  | date | score | Inches | mg/sd       | sds/lb | %       | %    | score     | score     |                        |
| IA2021    | 51.9  | 9/8  | 1.7   | 31     | 151         | 3010   | 34.8    | 19.9 | 2         | 3.6       | Commodity check        |
| Macon     | 52.2  | 9/16 | 1.6   | 35     | 163         | 2790   | 36.6    | 19.2 | 2         | 3.9       | Commodity check        |
| IA2061    | 53.9  | 9/8  | 1.9   | 35     | 165         | 2750   | 36.8    | 19.4 | 2         | 3.4       | Commod., yellow hilum  |
| IA2043    | 48.6  | 9/9  | 1.3   | 33     | 242         | 1880   | 37.5    | 18.2 | 5         | 4.0       | Large seed             |
| IA2045    | 47.5  | 9/11 | 1.7   | 31     | 238         | 1910   | 38.1    | 18.5 | 5         | 3.0       | Large seed             |
| IA2040    | 51.9  | 9/14 | 1.6   | 34     | 255         | 1780   | 38.5    | 18.3 | 4         | 3.8       | Large seed             |
| IA2037    | 48.5  | 9/14 | 1.6   | 31     | 241         | 1890   | 39.6    | 17.8 | 2         | 3.9       | Large seed             |
| IA3009    | 46.1  | 9/18 | 1.8   | 35     | 268         | 1700   | 37.9    | 18.4 | 5         | 3.9       | Large seed             |
| Ohio FG1  | 44.8  | 9/21 | 1.6   | 35     | 216         | 2100   | 38.3    | 18.6 | 4         | 3.3       | Large seed             |
| IA2017    | 44.1  | 9/6  | 2.9   | 36     | 194         | 2340   | 39.6    | 17.8 | 3         | 3.3       | L. seed & high protein |
| IA2053    | 50.3  | 9/7  | 1.9   | 34     | 205         | 2220   | 40.1    | 17.7 | 5         | 3.1       | L. seed & high protein |
| IA2042    | 48.0  | 9/7  | 2.2   | 35     | 201         | 2260   | 39.4    | 17.9 | 4         | 4.0       | L. seed & high protein |
| HP204     | 39.6  | 9/8  | 2.8   | 37     | 200         | 2270   | 40.2    | 17.9 | 4         | 3.3       | L. seed & high protein |
| Vinton 81 | 39.4  | 9/9  | 2.7   | 39     | 204         | 2230   | 39.8    | 17.8 | 4         | 3.3       | L. seed & high protein |
| IA2044    | 48.1  | 9/10 | 1.3   | 31     | 218         | 2080   | 39.0    | 18.8 | 5         | 3.9       | L. seed & high protein |
| IA2048    | 46.5  | 9/10 | 1.3   | 30     | 232         | 1960   | 39.6    | 18.2 | 4         | 4.1       | L. seed & high protein |
| IA3006    | 46.0  | 9/11 | 1.5   | 32     | 236         | 1930   | 39.0    | 18.3 | 2         | 4.0       | L. seed & high protein |
| IA2047    | 44.7  | 9/11 | 1.3   | 31     | 235         | 1930   | 39.6    | 18.1 | 4         | 4.3       | L. seed & high protein |
| IA2020    | 43.3  | 9/11 | 1.9   | 36     | 215         | 2110   | 39.7    | 18.6 | 5         | 3.5       | L. seed & high protein |
| IA2046    | 49.9  | 9/12 | 1.6   | 32     | 228         | 1990   | 39.3    | 17.7 | 5         | 4.3       | L. seed & high protein |
| IA2049    | 49.4  | 9/12 | 1.4   | 32     | 239         | 1900   | 39.6    | 18.3 | 5         | 4.1       | L. seed & high protein |
| IA2041    | 48.6  | 9/12 | 1.4   | 36     | 183         | 2480   | 41.0    | 17.9 | 3         | 3.8       | L. seed & high protein |
| IA2054    | 48.5  | 9/13 | 1.6   | 37     | 192         | 2370   | 40.6    | 17.3 | 4         | 3.3       | L. seed & high protein |
| IA2034    | 47.2  | 9/14 | 1.8   | 37     | 190         | 2390   | 40.7    | 17.4 | 4         | 3.0       | L. seed & high protein |
| IA3011    | 47.2  | 9/14 | 1.7   | 33     | 192         | 2370   | 40.7    | 17.6 | 4         | 3.5       | L. seed & high protein |
| IA3001    | 47.8  | 9/18 | 1.8   | 37     | 177         | 2570   | 40.4    | 18.2 | 3         | 3.4       | L. seed & high protein |
| IA2057    | 42.9  | 9/8  | 2.8   | 32     | 73          | 6230   | 35.5    | 17.9 | 2         | 3.5       | Small seed             |
| IA2059    | 42.8  | 9/8  | 2.7   | 33     | 73          | 6230   | 35.5    | 17.9 | 2         | 3.8       | Small seed             |
| IA2056    | 46.2  | 9/9  | 2.3   | 32     | 73          | 6230   | 35.4    | 18.0 | 3         | 4.0       | Small seed             |
| IA2058    | 43.6  | 9/9  | 2.3   | 31     | 73          | 6230   | 35.5    | 18.0 | 2         | 3.9       | Small seed             |
| IA2035    | 43.0  | 9/9  | 2.4   | 33     | 69          | 6590   | 41.3    | 13.6 | 4         | 3.6       | Small seed             |
| IA2055    | 42.8  | 9/9  | 2.6   | 31     | 74          | 6140   | 35.5    | 18.1 | 3         | 3.5       | Small seed             |
| IA2060    | 46.3  | 9/10 | 1.8   | 34     | 77          | 5900   | 37.2    | 17.7 | 2         | 3.8       | Small seed             |
| IA3013    | 40.5  | 9/15 | 2.4   | 35     | 74          | 6140   | 36.3    | 17.3 | 1         | 3.5       | Small seed             |
| IA3008    | 42.3  | 9/16 | 3.2   | 33     | 74          | 6140   | 36.0    | 16.7 | 3         | 3.8       | Small seed             |
| IA4002    | 40.3  | 9/18 | 2.2   | 39     | 74          | 6140   | 40.3    | 14.5 | 1         | 3.8       | Small seed             |
| IA4001    | 39.8  | 9/19 | 3.5   | 36     | 71          | 6400   | 35.6    | 17.1 | 2         | 4.0       | Small seed             |
| IA2032    | 43.5  | 9/9  | 1.7   | 34     | 212         | 2140   | 39.4    | 19.2 | 4         | 3.5       | Lipoxygenase free      |
| IA2036LF  | 43.0  | 9/9  | 2.9   | 38     | 140         | 3250   | 38.1    | 17.6 | 3         | 3.9       | Lipoxygenase free**    |
| IA2025    | 44.2  | 9/10 | 1.6   | 33     | 205         | 2220   | 40.6    | 18.4 | 3         | 3.9       | Lipoxygenase free      |
| IA2027    | 42.3  | 9/10 | 2.1   | 38     | 203         | 2240   | 39.2    | 19.3 | 5         | 3.5       | Lipoxygenase free      |
| IA2029    | 39.8  | 9/10 | 2.3   | 35     | 190         | 2390   | 39.8    | 18.4 | 2         | 4.1       | Lipoxygenase free      |
| IA3012LF  | 50.4  | 9/14 | 2.1   | 34     | 140         | 3250   | 35.2    | 19.5 | 1         | 3.4       | Lipoxygenase free      |

\*\*Cultivar has resistance to the soybean cyst nematode and yellow hilum color.

Yield: Bushels/acre at 13% moisture

Maturity: Month/Day

Lodging: 1=Erect, 5= Prostrate

Protein and oil: 13%-moisture basis

Emergence score: 1=Excellent, 5=Poor

Iron-deficiency chlorosis score: 1=No chlorosis, 5=Severe chlorosis